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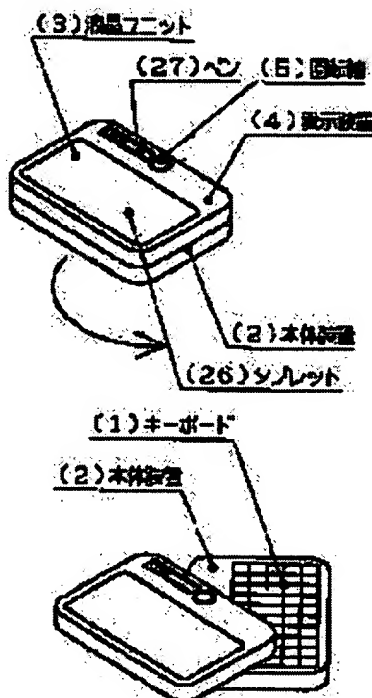
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(54) INFORMATION PROCESSOR



(57) Abstract:

PROBLEM TO BE SOLVED: To reduce number of components and to improve assemblability and operability of an input device by freely rotatably connecting a display device and a main body device while keeping a laminated state.

SOLUTION: The main body device 2 provided with a keyboard and the display device 4 with a built-in display equipment such as a liquid crystal unit 3 or the like are connected by a rotary shaft 5 rotatable in a plane direction. In this case, a structure can obtain a similar effect even when the position of the rotary shaft is arranged at the corner part of the component. Then, information is inputted to this information processor by a pen. When the main body device 2 provided with the keyboard 1 is rotated with the rotary shaft 5 as a rotation center to it, the keyboard is mainly operated as an information input device in the state. In such a manner, in the case of shifting

from a utilization form for operating the main input device of the keyboard 1 or the like to the utilization form for operating a sub input device such as pen input or the like or shifting in the reverse direction, the rotary shaft 5 for shifting to the rotation can be only one piece.

CLAIMS

[Claim(s)]

[Claim 1] The information processor connected free [a revolution] in the information processor equipped with the display which has a pen and one piece, or two or more keyboards, and has a touch panel function as an information input means, and a display function as an information output means as an information input means while a display and the main frame had held the laminating condition.

[Claim 2] The information processor with which an indicating equipment and the main frame were connected free [a revolution] in the information processor equipped with the sensor which detects which keyboard opened among said two or more keyboards by having the indicating equipment which has a pen and two or more keyboards, and has a touch panel function as an information input means, and the display capabilities as an information output means as an information input means.

[Claim 3] The information processor which can change the display connected free [a revolution] in the corner of the main frame every - width every length in the information processor equipped with the display which has a pen and a keyboard and has a touch panel function as an information input means, and a display function as an information output means as an information input means.

[Claim 4] The information processor from which it is possible from which to change the display connected free [a revolution] in the corner of the main frame every - width every length in the information processor equipped with the equipment which has the display which has a pen and a keyboard and has a touch panel function as an information input means and a display function as an information output means as an information input means, and detects the location of a display inside the main frame, and the display direction changes with the directions of a display.

[Claim 5] The information processor with which a display and the main frame were connected free [a revolution and a parallel displacement] in the information processor equipped with the display which has a pen and a keyboard and has a touch panel function as an information input means, and a display function as an information output means as an information input means.

[Claim 6] The information processor which has 1 time or the structure which can carry out multiple-times immobilization at an angle of the arbitration in the middle of a revolution in the information processor with which it had a pen and one piece, or two or more keyboards, and one piece or the display which it has was provided, and a display and the main frame were connected free [a revolution] as an information input means in the touch panel function as an information input means, and the display function as an information output means.

[Claim 7] The information processor with which displays were connected free [a revolution] in the information processor equipped with two displays which have a pen as an information input means and have a touch panel function as an information input means, and a display function as an information output means.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to pocket information processors, such as a word processor of a note type, and a personal computer.

[0002]

[Description of the Prior Art] As a conventional example, there are JP,4-10012,A, JP,2-127714,A, JP,2-81215,A, etc.

[0003]

JP,4-10012,A is the structure which those with two place and a display can rotate [a hinge] 360 degrees like drawing 30 (a) - (d). This structure changed with operating conditions to four kinds of following conditions, and has improved usability. Namely, the condition of a condition:key and pen input-state drawing 30 (d) of the condition:key-input state diagram 30 (c) of pocket [condition:receipt /] state diagram 30 (b) of drawing 30 (a): It is in each condition of a pen input-only condition.

[0004]

Like drawing 2 (a), (b), and drawing 3 (a) - (c), JP,2-127714,A and JP,2-81215,A have two screens, enlarge a viewing area by opening a display, and can make product occupancy area small by closing a display. It is classified into each following condition.

[0005]

Drawing 31 (a): state-diagram [which closed the display] 31 (b): -- a display -- open beam state-diagram 32 (a): state-diagram [which closed the display] 32 (b): -- a display - - an open beam condition (condition the display screen does not appear)

Drawing 32 (c): It is an open beam condition (condition the display screen appears) about a display.

[0006]

[Problem(s) to be Solved by the Invention] With the conventional technique, two revolving shafts between an indicating equipment and the main frame containing a keyboard were required, and for the reason, the structure of a revolving-shaft part became complicated and needed the improvement in cost nature and assembly nature.

[0007]

Moreover, since the structure of a revolving-shaft part became complicated, the electrical installation approach between an indicating equipment and the main frame containing a keyboard also needed the improvement in cost nature and assembly nature.

[0008]

Furthermore, the improvement was needed in not becoming, if can arrange only one keyboard as an input device from the structure, but perform the display of plurality [top / keyboard switch] for the reason, assign the function of plurality [key / each] and there is nothing, but the input approach becoming complicated, and causing a beginner's confusion, etc. and operability.

[0009]

With the above-mentioned structure, when a keyboard is changed, in order to make equipment recognize having changed the keyboard, a certain procedure is required, and there is the need for an improvement in usability.

[0010]

Moreover, since a display was not able to be turned length and sideways, depending on the content of a display, screen rolling occurred frequently, and the need for an improvement was in usability and visibility.

[0011]

With the above-mentioned structure, to the direction of the display screen, since the direction of a graphic character needed to be changed, the need for an improvement was in usability.

[0012]

Two hinges are required and the part cost also goes up by the conventional tilt feature. Moreover, at the time of a pen activity, since the screen is separated, it is not user-friendly.

[0013]

Moreover, when this is large, or when heavy [rotating a screen, and], usability worsens and the burden to a revolving shaft becomes [while a screen moves and usability worsens at the time of the activity of a pen etc., if unfixable in a specific location when rotating a screen,] large.

[0014]

[Means for Solving the Problem] An information processor according to claim 1 is an information processor connected free [a revolution] while a display and the main frame had held the laminating condition in the information processor equipped with the display which has a pen and one piece, or two or more keyboards, and has a touch panel function as an information input means, and a display function as an information output means as an information input means.

[0015]

An information processor according to claim 2 is an information processor with which an indicating equipment and the main frame were connected free [a revolution] in the information processor equipped with the sensor which detects which keyboard opened among said two or more keyboards by having the indicating equipment which has a pen and two or more keyboards, and has a touch panel function as an information input means, and the display capabilities as an information output means as an information input means.

[0016]

An information processor according to claim 3 is an information processor which can change the display connected free [a revolution] in the corner of the main frame every - width every length in the information processor equipped with the display which has a pen and a keyboard and has a touch panel function as an information input means, and a display function as an information output means as an information input means.

[0017]

An information processor according to claim 4 has a pen and a keyboard as an information input means. In the information processor equipped with the equipment which has the display which has a touch panel function as an information input means, and a display function as an information output means, and detects the location of a display inside the main frame It is possible to change the display connected free [a revolution] in the corner of the main frame every - width every length, and it is the information processor from which the display direction changes with the directions of a

display.

[0018]

An information processor according to claim 5 is an information processor with which a display and the main frame were connected free [a revolution and a parallel displacement] in the information processor equipped with the display which has a pen and a keyboard and has a touch panel function as an information input means, and a display function as an information output means as an information input means.

[0019]

An information processor according to claim 6 is an information processor which has 1 time or the structure which can carry out multiple-times immobilization at an angle of the arbitration in the middle of a revolution in the information processor with which it had a pen and one piece, or two or more keyboards, and one piece or the display which it has was provided, and a display and the main frame were connected free [a revolution] as an information input means in the touch panel function as an information input means, and the display function as an information output means.

[0020]

An information processor according to claim 7 is an information processor with which displays were connected free [a revolution] in the information processor equipped with two displays which have a pen as an information input means and have a touch panel function as an information input means, and a display function as an information output means.

[0021]

[Embodiment of the Invention] Hereafter, the example of this invention is explained with reference to a drawing.

[0022] (Example 1) A perspective view shows the whole example 1 configuration to drawing 1 .

[0023]

Although considered as the configuration which combined the main frame (2) containing a keyboard, and the display (4) having a display device like for example, a liquid crystal unit (3) in the direction of a flat surface with the pivotable revolving shaft (5), the location of a revolving shaft is the structure where the same effectiveness is acquired, also when it has arranged to the corner of a product like drawing 12 .

[0024]

Drawing 1 is a gestalt which performs the information input to this information processor with a pen.

[0025]

On the other hand, if a revolving shaft (5) is rotated as a center of rotation and the main frame (2) which contains a keyboard (1) like drawing 2 is made to shift to the gestalt of drawing 3 , in this condition, a keyboard can mainly be operated as an information input device.

[0026]

Drawing 4 is the sectional view of the case under cutting from the direction of a side face about drawing 1 .

[0027]

If the cable (6) which is an electrical connecting means between the main frames (2) which make a revolving shaft (5) hollow structure and contain an indicating equipment

(4) and a keyboard (1) is arranged as shown in the sectional view of drawing 4 , since the said division is located at the rotational core, The case where the gestalt which performs the information input to this information processor with a pen like drawing 5 is rotated is included. no matter an indicating equipment (4) and the main frame containing a keyboard (1) may be in what physical relationship the case where it operates although the physical relationship over the center of rotation of a cable (6) hears size with shift of an input gestalt in order that there may be no cable (6) in a center of rotation, since the location of the cable (6) to a center of rotation is always fixed -- comparing -- the member for protection -- a cutback -- or it can be made unnecessary.

[0028]

(Example 2) A perspective view shows the whole example 2 configuration to drawing 6 .

[0029]

In the information processor of a configuration of having combined the main frame containing a keyboard and the display having a display device like for example, a liquid crystal unit in the direction of a flat surface with the pivotable revolving shaft, although considered as the structure which has arranged plurality, for example, an input unit like a keyboard, between the main frame (2) and a display (4) like drawing 6 , the location of a revolving shaft is the structure where the same effectiveness is acquired, also when it has arranged in the center section of the product like drawing 1 .

[0030]

Here, two or more input units arranged between the main frame (2) and a display (4) shall be temporarily made into two pieces, and the input unit by the side of an up input auxiliary device (7) and the bottom (2), i.e., the main frame, shall be defined for the input unit by the side of a top face (4), i.e., a display, as a lower input auxiliary device (8).

[0031]

Although an operator uses the main input unit (10) built in the main frame (2) when inputting the usual alphabetic character, he can make the lower twist horizontal direction of a display (4) able to rotate a notation, the up input auxiliary device (7) with which each alphabetic character was printed when inputting a European-languages special character, and a lower input auxiliary device (8), can pull out, and can input an alphabetic character suitably, for example.

[0032]

(Example 3) The sectional view of the whole configuration of an example 3 is shown in drawing 7 , drawing 8 , drawing 9 , and drawing 10 .

[0033]

Moreover, the input-device change detection equipment (9) arranged on the occasion of this example shows the flow chart which controls an information processor to drawing 11 . This example is explained along with flow chart drawing 11 .

[0034] (S100) Input units, such as an alphabetic character which an operator wants to input using specific application, a keyboard which had information indicated, and a pen, are chosen.

[0035]

(S101) Actuation of the lowermost input unit change detection equipment (9) is read first, and it is **.

[0036]

(S102) When this equipment is not operating, it judges that the main (S109) input unit (10) was chosen, the application (A) using the main (S110) input unit (10) is started, and it moves to an alphabetic character input stage.

[0037]

(S109) Actuation of the lowermost input unit change detection equipment (9) is read.

[0038]

(S102) When this equipment is operating, actuation of the lower-berth input unit change detection equipment of a degree is read by (S103).

[0039]

(S104) When this equipment is not operating, it judges that (8) selections of the lower input auxiliary device were made by (S111), the application (B) which uses a lower input auxiliary device (8) by (S112) is started, and it moves to an alphabetic character input stage.

[0040]

Thus, actuation of detection equipment is judged about two or more prepared input units of all, and the same processing is repeated.

[0041]

(S106) When all detection equipments are finally operating, it is judged as that as which hand entry force equipment (11) was chosen by (S107), the application (D) which corresponds by (S108) is started, and it moves to an alphabetic character input stage.

[0042]

By arranging input unit change detection equipment (9) to each input unit as mentioned above, it can become possible to start the application which corresponds by selection of an input unit, and an alphabetic character input can be performed still simpler.

[0043]

(Example 4) Drawing 12 (display initial state) is a perspective view in the condition (initial state: condition of only a haulage condition and a pen input) of having arranged revolving-shaft structure to the product top right corner (good also at an upper left edge), and having piled up the main frame and a display.

[0044]

The (90 display revolution condition) of drawing 12 is a perspective view in the condition (pen key input condition) of having arranged revolving-shaft structure to the product top right corner (good also at an upper left edge), and having carried out the display every length by the 90 display revolution.

[0045]

The (180 display revolution condition) of drawing 12 is a perspective view in the condition (pen key input condition) of having arranged revolving-shaft structure to the product top right corner (good also at an upper left edge), and having carried out the display every width by the 180 display revolution.

[0046]

Like drawing 12, the same revolving-shaft structure as the example of claim 1 is made into display screen longwise arrangement and the structure where display screen oblong arrangement and the direction of the display screen can change 180 degrees at a revolution, by 90 display revolution also with a pen key in the condition which can be inputted by arranging to a product top right corner (good also at an upper left edge).

[0047]

(Example 5) Drawing 13 is the cross section of the initial state of drawing 7 . Fundamental structure is the same as an example 4, adds a revolving-shaft convex configuration (15) to a revolving shaft (5), and installs sensor 1 (13) and a sensor 2 (14) in the interior of the main frame (2).

[0048]

Drawing 14 is the drawing in which a revolving-shaft convex configuration (15) location changing, and changing the ON/OFF condition of sensor 1 (13) and a sensor 2 (14) in each condition (the first stage, a 90-degree revolution, and 180-degree revolution condition) was shown.

[0049]

Drawing 15 is a flow which detects the direction of a display in the ON/OFF change of state of sensor 1 (13) and a sensor 2 (14), and controls the direction of the display screen.

[0050]

(S200) -- like -- the condition of a sensor 1 (13) -- seeing -- ON condition -- it is (S201) -- the direction of a display screen alphabetic character is made into length like. [first,] If it is in an OFF condition, the condition of a sensor 2 (14) will be seen like S202.

[0051]

ON condition -- it is (S203) -- the direction of a display screen alphabetic character is turned sideways (usually reverse of the display direction) like.

[0052]

If it is in an OFF condition (S204) makes usual the direction of a display screen alphabetic character like.

[0053]

By having structure like drawing 13 , the ON/OFF condition of sensor 1 (13) and a sensor 2 (14) changes like drawing 14 in each condition (the first stage, a 90-degree revolution, and 180-degree revolution condition), and display screen directional control of drawing 15 is performed.

[0054]

(Example 6) In order for a lower half to set a revolving shaft as the configuration of the above-mentioned revolving shaft (5), to change an upper half in the shape of [reverse convex type] a block like drawing 16 ((16) slide-block sections) (drawing 17 is the orthogonal views and sectional view) and to guide the parallel translation of the shaft further, parallel translation becomes possible by preparing a slit (17) like drawing 18 in the cabinet on the background of an indicating equipment, and incorporating the above-mentioned revolving shaft here. The sectional view when incorporating these becomes like drawing 19 .

[0055]

Although a slit (17) may be prepared in a main frame (2) side, an appearance does not need to be spoiled if it prepares in the background of a display (4).

[0056]

(Example 7) For example, a depression (18) is established like drawing 20 , the configuration of the above-mentioned revolving shaft (5) is made into the configuration of a cam, and the flat spring (19) of a suitable configuration like drawing 21 is pressed against this cam (drawing 22).

[0057]

When the part of the depression (18) of the cam section of a revolving shaft (5) laps with the part of the convex of flat spring (19), a display (4) is locked there. Moreover, when the part of the depression (18) of the cam section of a revolving shaft (5) laps with the part of the convex of a slider by including the slider (20) of a suitable configuration in a guide (21) with coiled spring (22) (drawing 23), sliding on the longitudinal direction like drawing 23 , and pressing this against the cam section of a revolving shaft (5), a display (4) is locked there (drawing 24).

[0058]

(Example 8) for example, the display (4) which has the configuration of a bearing (23 24) like drawing 25 in one revolving shaft (5) -- A and B are combined. The sectional view near the revolving shaft when incorporating these becomes like drawing 26 . thereby -- a display (4) -- A and B can be rotated independently, respectively.

[0059]

Moreover, if a **** type display (4) is together put in the same magnitude as the main frame (2) simply, it will be in a condition like drawing 27 . each display -- it can be made to rotate independently

[0060]

Moreover, both displays can be simultaneously rotated only by establishing two revolving shafts (5) (revolutions A and B), forming a gear (25) in a part for a shank like drawing 28 , and rotating either of the displays A and B like drawing 29 by incorporating.

[0061]

[Effect of the Invention] According to invention according to claim 1, from the utilization gestalt which operates the main input units, such as a keyboard To the utilization gestalt which operates subinput units, such as a pen input, or when shifting to the hard flow and the revolving shaft used for the revolution at the time of shift became one piece It becomes possible to simplify the electrical installation approach of a between [the indicating equipment containing liquid crystal units, such as a cable, and the main frame containing a keyboard], becomes the cutback list of components mark improvable [assembly workability], and assembles in a cost list compared with the conventional technique in which this function is realizable, and the engine performance is improved.

[0062]

Moreover, while becoming possible to use the optimal Key Caps for the application used by arranging two or more input units, such as a keyboard, by concealing input units, such as a keyboard which the application used for an operator does not use, it becomes possible to decrease the error in an input of an operator, and the operability to input units, such as a keyboard, can be improved.

[0063]

According to invention according to claim 2, without directing modification of an input unit to equipment oneself [operator], when input units, such as a keyboard, are changed, automatically, by changing application, an operator becomes possible [carrying out the input of a direct text, a numeric value, etc. to application, without performing recognition procedure], and can improve operability.

[0064]

According to invention according to claim 3, an operator can choose easily right ** of usability and visibility united with the display format with the condition which can be pen keyed by the ability changing the display screen longwise and oblong only by display

revolution actuation with easy structure.

[0065]

Without according to invention according to claim 4, an operator operating it, when rotating a display, since the direction modification of a graphic character which met in the direction of the display screen can be performed, usability becomes good.

[0066]

according to invention according to claim 5, since a screen becomes especially near by the pen position by making possible revolution of a screen and parallel translation of a revolving shaft, it is markedly alike and usability becomes good.

[0067]

Moreover, also in a typing position, since a screen can be installed in the location of arbitration, an activity in all locations is enabled.

[0068]

According to invention according to claim 6, by establishing a rotational lock device, in a pen position, a screen can rotate carelessly, generating of an input mistake etc. can be prevented, and it can prevent a screen's moving during a key input in a typing position, and becoming hard to see.

[0069]

According to invention according to claim 7, the amount of information which can be displayed by giving two or more screen units with the same area as a body unit increases, and amplification of operation, such as displaying the information from which the content differed, can be aimed at.

[0070]

Moreover, by dividing a screen into two, since the weight of one screen can also become half and it can be made to rotate easily, usability becomes good.

[0071]

Furthermore, since the burden to a revolving shaft is also mitigated, it becomes the structure which is easy to design also structural.

TECHNICAL FIELD

[Field of the Invention]

This invention relates to pocket information processors, such as a word processor of a note type, and a personal computer.

PRIOR ART

[Description of the Prior Art]

As a conventional example, there are JP,4-10012,A, JP,2-127714,A, JP,2-81215,A, etc.

[0003]

JP,4-10012,A is the structure which those with two place and a display can rotate [a hinge] 360 degrees like drawing 30 (a) - (d). This structure changed with operating conditions to four kinds of following conditions, and has improved usability. Namely, the

condition of a condition:key and pen input-state drawing 30 (d) of the condition:key-input state diagram 30 (c) of pocket [condition:receipt /] state diagram 30 (b) of drawing 30 (a): It is in each condition of a pen input-only condition.

[0004]

Like drawing 2 (a), (b), and drawing 3 (a) - (c), JP,2-127714,A and JP,2-81215,A have two screens, enlarge a viewing area by opening a display, and can make product occupancy area small by closing a display. It is classified into each following condition.

[0005]

Drawing 31 (a): state-diagram [which closed the display] 31 (b): -- a display -- open beam state-diagram 32 (a): state-diagram [which closed the display] 32 (b): -- a display - - an open beam condition (condition the display screen does not appear)

Drawing 32 (c): It is an open beam condition (condition the display screen appears) about a display.

EFFECT OF THE INVENTION

[Effect of the Invention] the utilization gestalt which operates subinput units, such as the utilization gestalt which operates the main input units, such as a keyboard, to a pen input, according to invention according to claim 1 -- or the thing which the revolving shaft used for the revolution at the time of shift became one piece when shifting to the hard flow It becomes possible to simplify the electrical installation approach of a between [the indicating equipment containing liquid crystal units, such as a cable, and the main frame containing a keyboard], becomes the cutback list of components mark improvable [assembly workability], and assembles in a cost list compared with the conventional technique in which this function is realizable, and the engine performance is improved.

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Moreover, while becoming possible to use the optimal Key Caps for the application used by arranging two or more input units, such as a keyboard, by concealing input units, such as a keyboard which the application used for an operator does not use, it becomes possible to decrease the error in an input of an operator, and the operability to input units, such as a keyboard, can be improved.

[0063]

According to invention according to claim 2, without directing modification of an input unit to equipment oneself [operator], when input units, such as a keyboard, are changed, automatically, by changing application, an operator becomes possible [carrying out the input of a direct text, a numeric value, etc. to application, without performing recognition procedure], and can improve operability.

[0064] According to invention according to claim 3, an operator can choose easily right ** of usability and visibility united with the display format with the condition which can be pen keyed by the ability changing the display screen longwise and oblong only by display revolution actuation with easy structure.

[0065]

Without according to invention according to claim 4, an operator operating it, when rotating a display, since the direction modification of a graphic character which met in

the direction of the display screen can be performed, usability becomes good.

[0066]

according to invention according to claim 5, since a screen becomes especially near by the pen position by making possible revolution of a screen and parallel translation of a revolving shaft, it is markedly alike and usability becomes good.

[0067] Moreover, also in a typing position, since a screen can be installed in the location of arbitration, an activity in all locations is enabled.

[0068]

According to invention according to claim 6, by establishing a rotational lock device, in a pen position, a screen can rotate carelessly, generating of an input mistake etc. can be prevented, and it can prevent a screen's moving during a key input in a typing position, and becoming hard to see.

[0069]

According to invention according to claim 7, the amount of information which can be displayed by giving two or more screen units with the same area as a body unit increases, and amplification of operation, such as displaying the information from which the content differed, can be aimed at.

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Moreover, by dividing a screen into two, since the weight of one screen can also become half and it can be made to rotate easily, usability becomes good.

[0071]

Furthermore, since the burden to a revolving shaft is also mitigated, it becomes the structure which is easy to design also structural.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] With the conventional technique, two revolving shafts between an indicating equipment and the main frame containing a keyboard were required, and for the reason, the structure of a revolving-shaft part became complicated and needed the improvement in cost nature and assembly nature.

[0007]

Moreover, since the structure of a revolving-shaft part became complicated, the electrical installation approach between an indicating equipment and the main frame containing a keyboard also needed the improvement in cost nature and assembly nature.

[0008]

furthermore, the improvement was needed in not becoming, if can arrange only one keyboard as an input device from the structure, but perform the display of plurality [top / keyboard switch] for the reason, assign the function of plurality [key / each] and there is nothing, but the input approach becoming complicated, and causing a beginner's confusion, etc. and operability.

[0009]

With the above-mentioned structure, when a keyboard is changed, in order to make equipment recognize having changed the keyboard, a certain procedure is required, and

there is the need for an improvement in usability.

[0010]

Moreover, since a display was not able to be turned length and sideways, depending on the content of a display, screen rolling occurred frequently, and the need for an improvement was in usability and visibility.

[0011]

With the above-mentioned structure, to the direction of the display screen, since the direction of a graphic character needed to be changed, the need for an improvement was in usability.

[0012]

Two hinges are required and the part cost also goes up by the conventional tilt feature. Moreover, at the time of a pen activity, since the screen is separated, it is not user-friendly.

[0013]

Moreover, when this is large, or when heavy [rotating a screen, and], usability worsens and the burden to a revolving shaft becomes [while a screen moves and usability worsens at the time of the activity of a pen etc., if unfixable in a specific location when rotating a screen,] large.

MEANS

[Means for Solving the Problem] An information processor according to claim 1 is an information processor connected free [a revolution] while a display and the main frame had held the laminating condition in the information processor equipped with the display which has a pen and one piece, or two or more keyboards, and has a touch panel function as an information input means, and a display function as an information output means as an information input means.

[0015]

An information processor according to claim 2 is an information processor with which an indicating equipment and the main frame were connected free [a revolution] in the information processor equipped with the sensor which detects which keyboard opened among said two or more keyboards by having the indicating equipment which has a pen and two or more keyboards, and has a touch panel function as an information input means, and the display capabilities as an information output means as an information input means.

[0016]

An information processor according to claim 3 is an information processor which can change the display connected free [a revolution] in the corner of the main frame every - width every length in the information processor equipped with the display which has a pen and a keyboard and has a touch panel function as an information input means, and a display function as an information output means as an information input means.

[0017]

An information processor according to claim 4 has a pen and a keyboard as an information input means. In the information processor equipped with the equipment

which has the display which has a touch panel function as an information input means, and a display function as an information output means, and detects the location of a display inside the main frame It is possible to change the display connected free [a revolution] in the corner of the main frame every - width every length, and it is the information processor from which the display direction changes with the directions of a display.

[0018]

An information processor according to claim 5 is an information processor with which a display and the main frame were connected free [a revolution and a parallel displacement] in the information processor equipped with the display which has a pen and a keyboard and has a touch panel function as an information input means, and a display function as an information output means as an information input means.

[0019]

An information processor according to claim 6 is an information processor which has 1 time or the structure which can carry out multiple-times immobilization at an angle of the arbitration in the middle of a revolution in the information processor with which it had a pen and one piece, or two or more keyboards, and one piece or the display which it has was provided, and a display and the main frame were connected free [a revolution] as an information input means in the touch panel function as an information input means, and the display function as an information output means.

[0020]

An information processor according to claim 7 is an information processor with which displays were connected free [a revolution] in the information processor equipped with two displays which have a pen as an information input means and have a touch panel function as an information input means, and a display function as an information output means.

[0021]

[Embodiment of the Invention] Hereafter, the example of this invention is explained with reference to a drawing.

[0022] (Example 1) A perspective view shows the whole example 1 configuration to drawing 1 .

[0023]

Although considered as the configuration which combined the main frame (2) containing a keyboard, and the display (4) having a display device like for example, a liquid crystal unit (3) in the direction of a flat surface with the pivotable revolving shaft (5), the location of a revolving shaft is the structure where the same effectiveness is acquired, also when it has arranged to the corner of a product like drawing 12 .

[0024]

Drawing 1 is a gestalt which performs the information input to this information processor with a pen.

[0025]

On the other hand, if a revolving shaft (5) is rotated as a center of rotation and the main frame (2) which contains a keyboard (1) like drawing 2 is made to shift to the gestalt of drawing 3 , in this condition, a keyboard can mainly be operated as an information input device.

[0026]

Drawing 4 is the sectional view of the case under cutting from the direction of a side face about drawing 1 .

[0027]

If the cable (6) which is an electrical connecting means between the main frames (2) which make a revolving shaft (5) hollow structure and contain an indicating equipment (4) and a keyboard (1) is arranged as shown in the sectional view of drawing 4 , since the said division is located at the rotational core, The case where the gestalt which performs the information input to this information processor with a pen like drawing 5 is rotated is included. no matter an indicating equipment (4) and the main frame containing a keyboard (1) may be in what physical relationship the case where it operates although the physical relationship over the center of rotation of a cable (6) hears size with shift of an input gestalt in order that there may be no cable (6) in a center of rotation, since the location of the cable (6) to a center of rotation is always fixed -- comparing -- the member for protection -- a cutback -- or it can be made unnecessary.

[0028]

(Example 2) A perspective view shows the whole example 2 configuration to drawing 6 .

[0029]

In the information processor of a configuration of having combined the main frame containing a keyboard and the display having a display device like for example, a liquid crystal unit in the direction of a flat surface with the pivotable revolving shaft, although considered as the structure which has arranged plurality, for example, an input unit like a keyboard, between the main frame (2) and a display (4) like drawing 6 , the location of a revolving shaft is the structure where the same effectiveness is acquired, also when it has arranged in the center section of the product like drawing 1 .

[0030]

Here, two or more input units arranged between the main frame (2) and a display (4) shall be temporarily made into two pieces, and the input unit by the side of an up input auxiliary device (7) and the bottom (2), i.e., the main frame, shall be defined for the input unit by the side of a top face (4), i.e., a display, as a lower input auxiliary device (8).

[0031]

Although an operator uses the main input unit (10) built in the main frame (2) when inputting the usual alphabetic character, he can make the lower twist horizontal direction of a display (4) able to rotate a notation, the up input auxiliary device (7) with which each alphabetic character was printed when inputting a European-languages special character, and a lower input auxiliary device (8), can pull out, and can input an alphabetic character suitably, for example.

[0032]

(Example 3) The sectional view of the whole configuration of an example 3 is shown in drawing 7 , drawing 8 , drawing 9 , and drawing 10 .

[0033]

Moreover, the input-device change detection equipment (9) arranged on the occasion of this example shows the flow chart which controls an information processor to drawing 11 . This example is explained along with flow chart drawing 11 .

[0034]

(S100) Input units, such as an alphabetic character which an operator wants to input using specific application, a keyboard which had information indicated, and a pen, are chosen.

[0035]

(S101) Actuation of the lowermost input unit change detection equipment (9) is read first, and it is **.

[0036]

(S102) When this equipment is not operating, it judges that the main (S109) input unit (10) was chosen, the application (A) using the main (S110) input unit (10) is started, and it moves to an alphabetic character input stage.

[0037]

(S109) Actuation of the lowermost input unit change detection equipment (9) is read.

[0038]

(S102) When this equipment is operating, actuation of the lower-berth input unit change detection equipment of a degree is read by (S103).

[0039]

(S104) When this equipment is not operating, it judges that (8) selections of the lower input auxiliary device were made by (S111), the application (B) which uses a lower input auxiliary device (8) by (S112) is started, and it moves to an alphabetic character input stage.

[0040]

Thus, actuation of detection equipment is judged about two or more prepared input units of all, and the same processing is repeated.

[0041]

(S106) When all detection equipments are finally operating, it is judged as that as which hand entry force equipment (11) was chosen by (S107), the application (D) which corresponds by (S108) is started, and it moves to an alphabetic character input stage.

[0042]

By arranging input unit change detection equipment (9) to each input unit as mentioned above, it can become possible to start the application which corresponds by selection of an input unit, and an alphabetic character input can be performed still simpler.

[0043]

(Example 4) Drawing 12 (display initial state) is a perspective view in the condition (initial state: condition of only a haulage condition and a pen input) of having arranged revolving-shaft structure to the product top right corner (good also at an upper left edge), and having piled up the main frame and a display.

[0044]

The (90 display revolution condition) of drawing 12 is a perspective view in the condition (pen key input condition) of having arranged revolving-shaft structure to the product top right corner (good also at an upper left edge), and having carried out the display every length by the 90 display revolution.

[0045]

The (180 display revolution condition) of drawing 12 is a perspective view in the condition (pen key input condition) of having arranged revolving-shaft structure to the product top right corner (good also at an upper left edge), and having carried out the display every width by the 180 display revolution.

[0046]

Like drawing 12 , the same revolving-shaft structure as the example of claim 1 is made into display screen longwise arrangement and the structure where display screen oblong arrangement and the direction of the display screen can change 180 degrees at a revolution, by 90 display revolution also with a pen key in the condition which can be inputted by arranging to a product top right corner (good also at an upper left edge).

[0047]

(Example 5) Drawing 13 is the cross section of the initial state of drawing 7 .

Fundamental structure is the same as an example 4, adds a revolving-shaft convex configuration (15) to a revolving shaft (5), and installs sensor 1 (13) and a sensor 2 (14) in the interior of the main frame (2).

[0048]

Drawing 14 is the drawing in which a revolving-shaft convex configuration (15) location changing, and changing the ON/OFF condition of sensor 1 (13) and a sensor 2 (14) in each condition (the first stage, a 90-degree revolution, and 180-degree revolution condition) was shown.

[0049]

Drawing 15 is a flow which detects the direction of a display in the ON/OFF change of state of sensor 1 (13) and a sensor 2 (14), and controls the direction of the display screen.

[0050]

(S200) -- like -- the condition of a sensor 1 (13) -- seeing -- ON condition -- it is (S201) -- the direction of a display screen alphabetic character is made into length like. [first,] If it is in an OFF condition, the condition of a sensor 2 (14) will be seen like S202.

[0051]

ON condition -- it is (S203) -- the direction of a display screen alphabetic character is turned sideways (usually reverse of the display direction) like.

[0052]

If it is in an OFF condition (S204) makes usual the direction of a display screen alphabetic character like.

[0053]

By having structure like drawing 13 , the ON/OFF condition of sensor 1 (13) and a sensor 2 (14) changes like drawing 14 in each condition (the first stage, a 90-degree revolution, and 180-degree revolution condition), and display screen directional control of drawing 15 is performed.

[0054]

(Example 6) In order for a lower half to set a revolving shaft as the configuration of the above-mentioned revolving shaft (5), to change an upper half in the shape of [reverse convex type] a block like drawing 16 ((16) slide-block sections) (drawing 17 is the orthogonal views and sectional view) and to guide the parallel translation of the shaft further, parallel translation becomes possible by preparing a slit (17) like drawing 18 in the cabinet on the background of an indicating equipment, and incorporating the above-mentioned revolving shaft here. The sectional view when incorporating these becomes like drawing 19 .

[0055]

Although a slit (17) may be prepared in a main frame (2) side, an appearance does not need to be spoiled if it prepares in the background of a display (4).

[0056]

(Example 7) For example, a depression (18) is established like drawing 20 , the configuration of the above-mentioned revolving shaft (5) is made into the configuration of a cam, and the flat spring (19) of a suitable configuration like drawing 21 is pressed against this cam (drawing 22).

[0057]

When the part of the depression (18) of the cam section of a revolving shaft (5) laps with the part of the convex of flat spring (19), a display (4) is locked there. Moreover, when the part of the depression (18) of the cam section of a revolving shaft (5) laps with the part of the convex of a slider by including the slider (20) of a suitable configuration in a guide (21) with coiled spring (22) (drawing 23), sliding on the longitudinal direction like drawing 23 , and pressing this against the cam section of a revolving shaft (5), a display (4) is locked there (drawing 24).

[0058]

(Example 8) for example, the display (4) which has the configuration of a bearing (23 24) like drawing 25 in one revolving shaft (5) -- A and B are combined. The sectional view near the revolving shaft when incorporating these becomes like drawing 26 . thereby -- a display (4) -- A and B can be rotated independently, respectively.

[0059]

Moreover, if a **** type display (4) is together put in the same magnitude as the main frame (2) simply, it will be in a condition like drawing 27 . each display -- it can be made to rotate independently

[0060]

Moreover, both displays can be simultaneously rotated only by establishing two revolving shafts (5) (revolutions A and B), forming a gear (25) in a part for a shank like drawing 28 , and rotating either of the displays A and B like drawing 29 by incorporating.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view of the whole equipment of an example 1.

[Drawing 2] It is drawing showing the stroke in the middle of rotating and pulling out an input unit.

[Drawing 3] It is drawing showing the input state in a keyboard.

[Drawing 4] It is the sectional view (the 1) of the internal structure for interconnection-cable arrangement.

[Drawing 5] It is the sectional view (the 2) of the internal structure for interconnection-cable arrangement.

[Drawing 6] It is the perspective view of the whole equipment of an example 2.

[Drawing 7] It is drawing showing the basic cross-section structure of the whole equipment of an example 3.

[Drawing 8] It is drawing showing the condition that the up input auxiliary device was chosen.

[Drawing 9] It is drawing showing the condition that the lower input auxiliary device was chosen.

[Drawing 10] It is drawing showing the condition that the main input unit was chosen.

[Drawing 11] It is the control flow chart of the equipment of an example 3.

[Drawing 12] It is the perspective view of the whole equipment of an example 4.

[Drawing 13] It is the sectional view of the whole equipment of an example 5.

[Drawing 14] It is drawing showing the **** configuration of an example 5, and the physical relationship of sensor 1 and a sensor 2.

[Drawing 15] It is the display directional-control flow chart of the equipment of an example 5.

[Drawing 16] It is the perspective view of the revolving shaft of the equipment of an example 6.

[Drawing 17] It is the sectional view of the revolving shaft of the equipment of an example 6.

[Drawing 18] It is the perspective view of the whole equipment of an example 6.

[Drawing 19] It is the sectional view of the whole equipment of an example 6.

[Drawing 20] It is the perspective view of the revolving shaft of the equipment of an example 7.

[Drawing 21] It is the perspective view of the flat spring of the equipment of an example 7.

[Drawing 22] It is a perspective view incorporating the revolving shaft and flat spring of equipment of an example 7.

[Drawing 23] It is the perspective view which included the slider of an example 7 in the guide with coiled spring.

[Drawing 24] It is the perspective view which built the unit of drawing 23 into the revolving shaft of the equipment of an example 7.

[Drawing 25] It is the perspective view of each screen unit of the equipment of an example 8.

[Drawing 26] It is the sectional view of the screen unit of the equipment of an example 8.

[Drawing 27] It is the perspective view of the whole equipment of an example 8.

[Drawing 28] It is the perspective view which established two revolving shafts of the equipment of an example 8, and formed the gear in a part for a shank.

[Drawing 29] It is the perspective view of the whole equipment of an example 8.

[Drawing 30] (A) It is drawing showing receipt / pocket condition of equipment conventionally.

(B) It is drawing showing the key input condition of equipment conventionally.

(C) It is drawing showing the key and pen input state of equipment conventionally.

(D) It is drawing showing the pen input-only condition of equipment conventionally.

[Drawing 31] (A) It is drawing showing the condition of having closed the display of equipment conventionally.

(B) It is drawing showing an open beam condition for the display of equipment conventionally.

[Drawing 32] (A) It is drawing showing the condition of having closed the display of equipment conventionally.

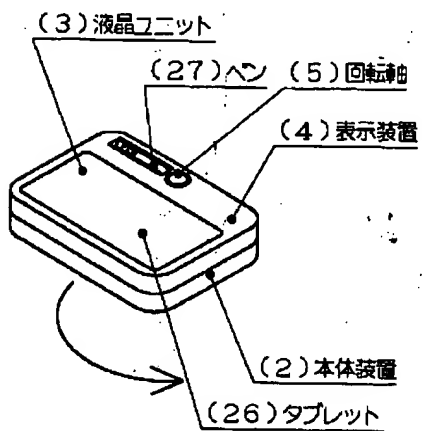
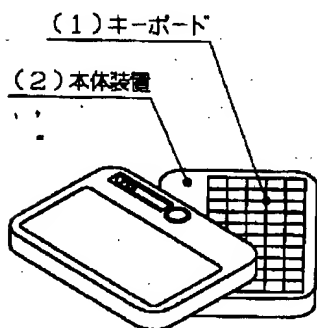
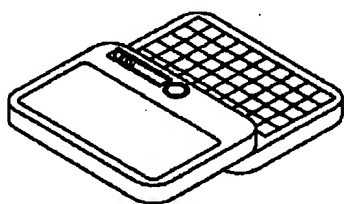
(B) It is drawing showing conventionally an open beam condition (condition the display screen does not appear) for the display of equipment.

(C) It is drawing showing conventionally an open beam condition (condition the display screen appears) for the display of equipment.

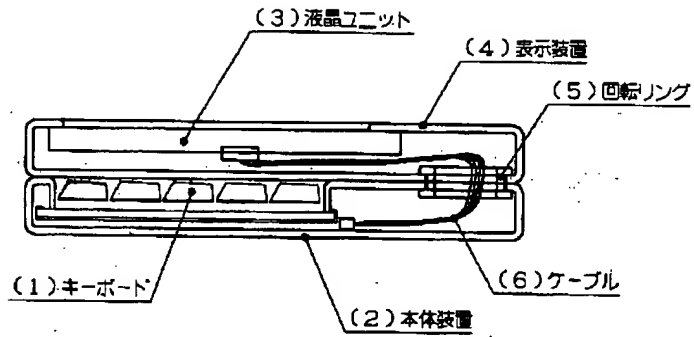
[Description of Notations]

- 1 Keyboard
- 2 Main Frame
- 3 Liquid Crystal Unit
- 4 Display
- 5 Revolution Ring
- 6 Cable
- 7 Up Input Auxiliary Device
- 8 Lower Input Auxiliary Device
- 9 Input Unit Change Detection Equipment
- 10 The Main Input Unit
- 11 Hand Entry Force Equipment
- 12 Display Screen
- 13 Sensor 1
- 14 Sensor 2
- 15 Revolving-Shaft Convex Configuration
- 16 Slide-Block Section
- 17 Slit
- 18 Depression
- 19 Flat Spring
- 20 Slider
- 21 Guide
- 22 Coil Spring
- 23 Bearing
- 24 Bearing
- 25 Gear
- 26 Tablet
- 27 Pen

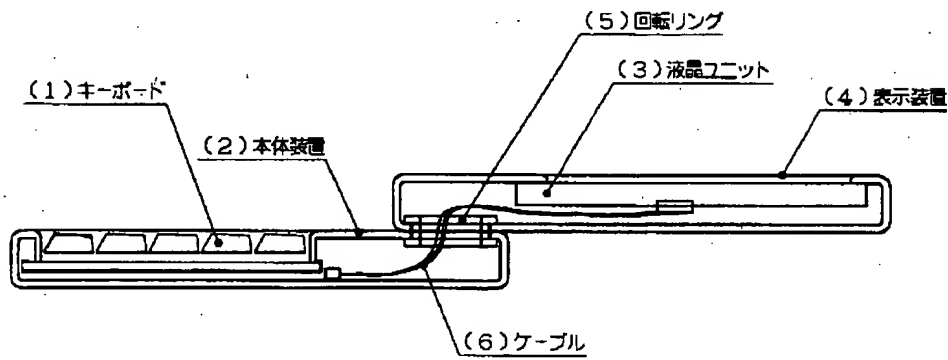
DRAWINGS

[Drawing 1]**[Drawing 2]****[Drawing 3]**

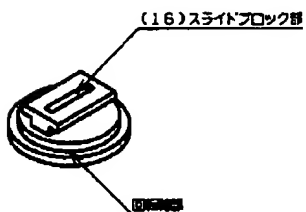
[Drawing 4]



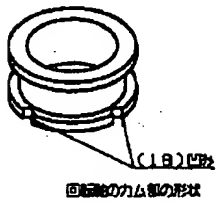
[Drawing 5]



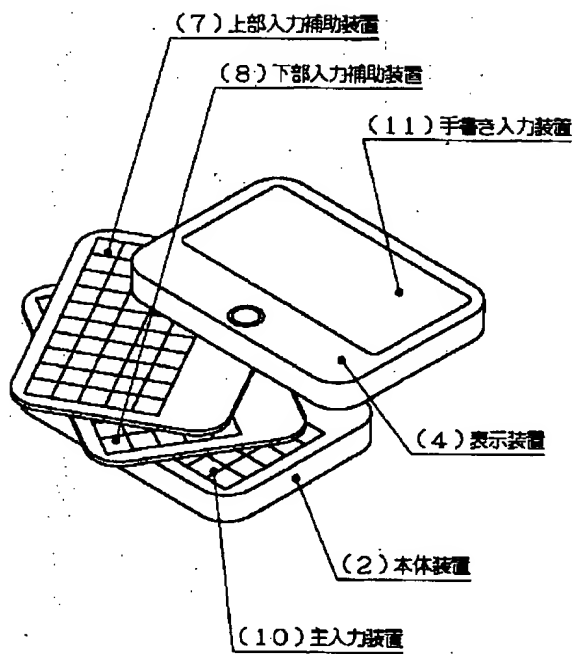
[Drawing 16]



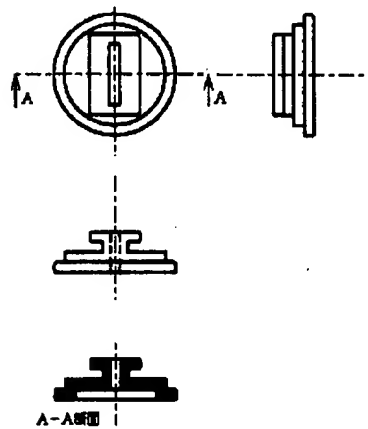
[Drawing 20]

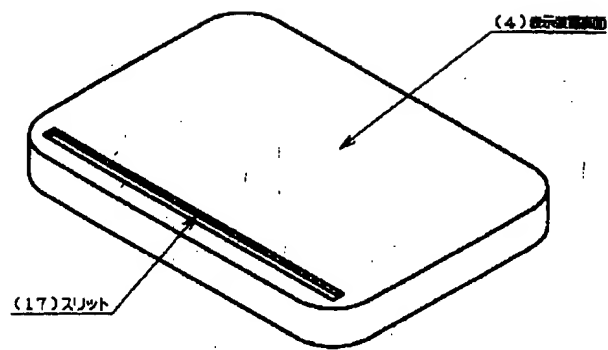
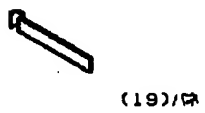
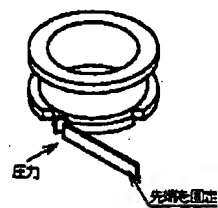
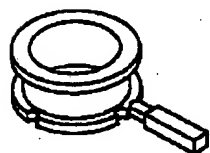


[Drawing 6]

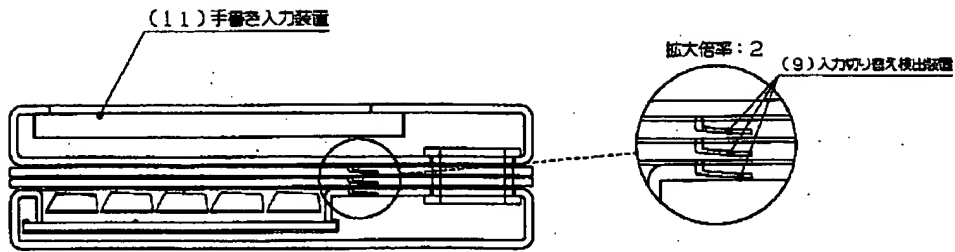


[Drawing 17]

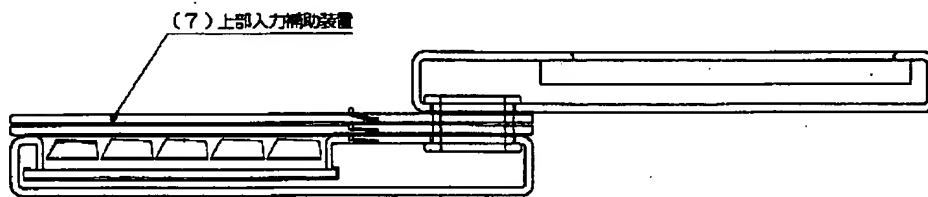


[Drawing 18][Drawing 21][Drawing 22][Drawing 24]

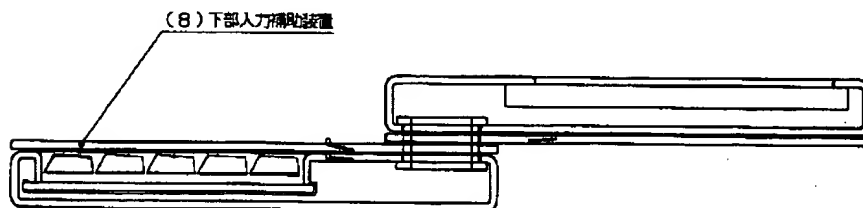
[Drawing 7]



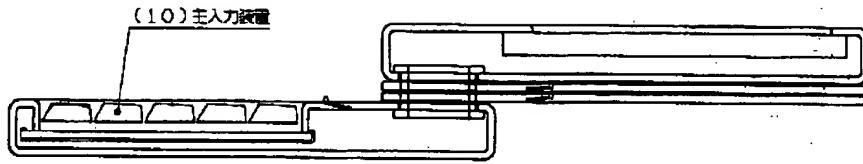
[Drawing 8]



[Drawing 9]



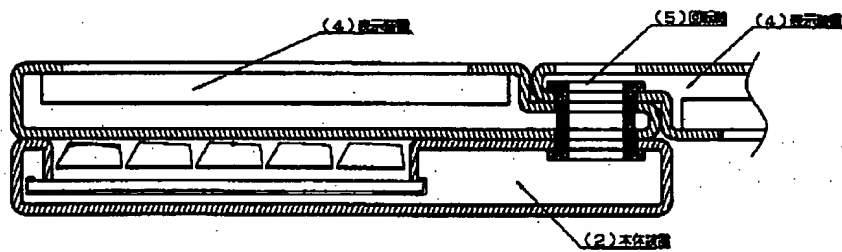
[Drawing 10]



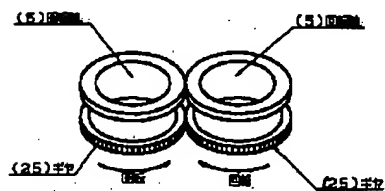
[Drawing 23]



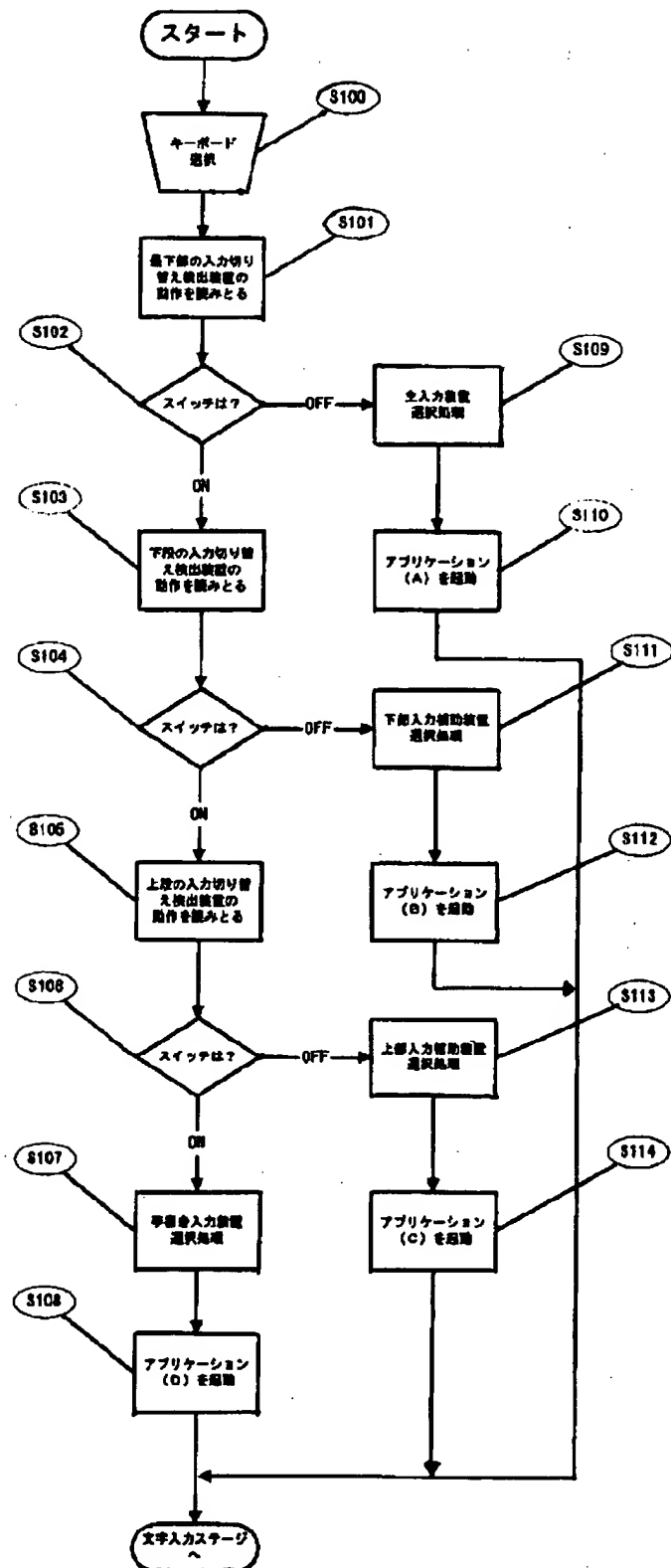
[Drawing 26]



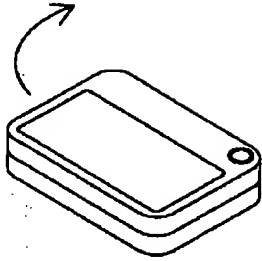
[Drawing 28]



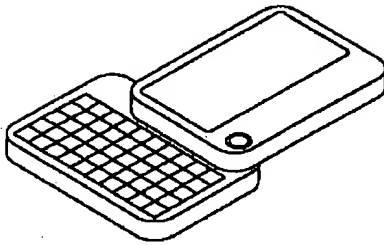
[Drawing 11]



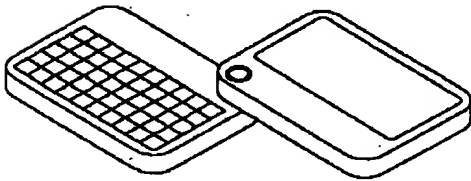
[Drawing 12]



表示初期状態

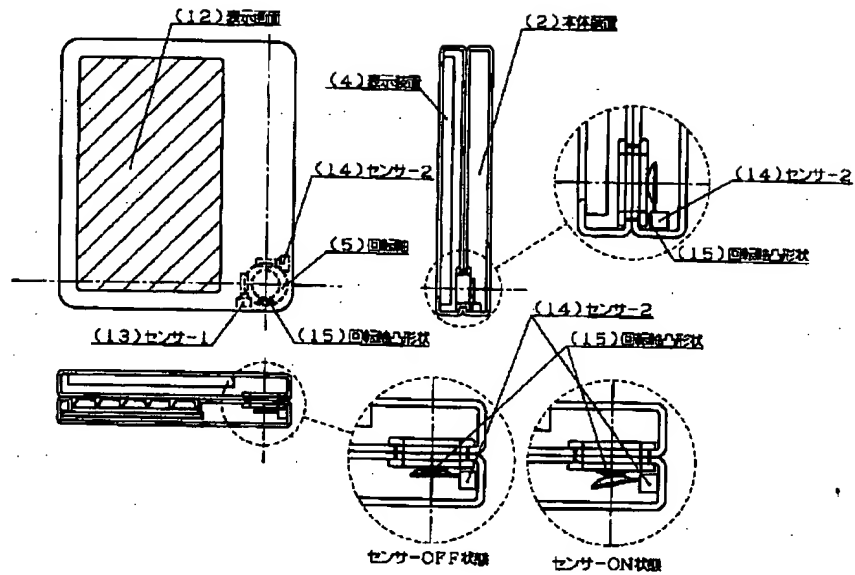


表示90度回転状態

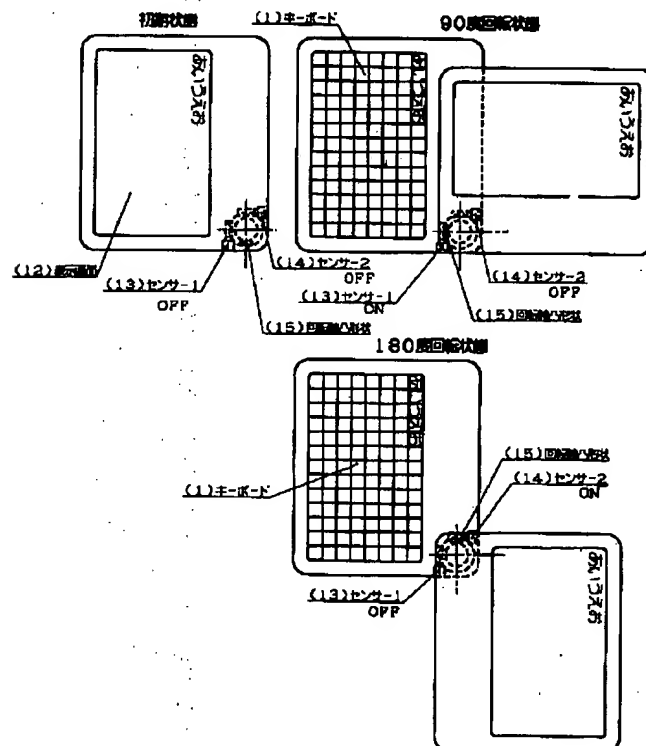


表示180度回転状態

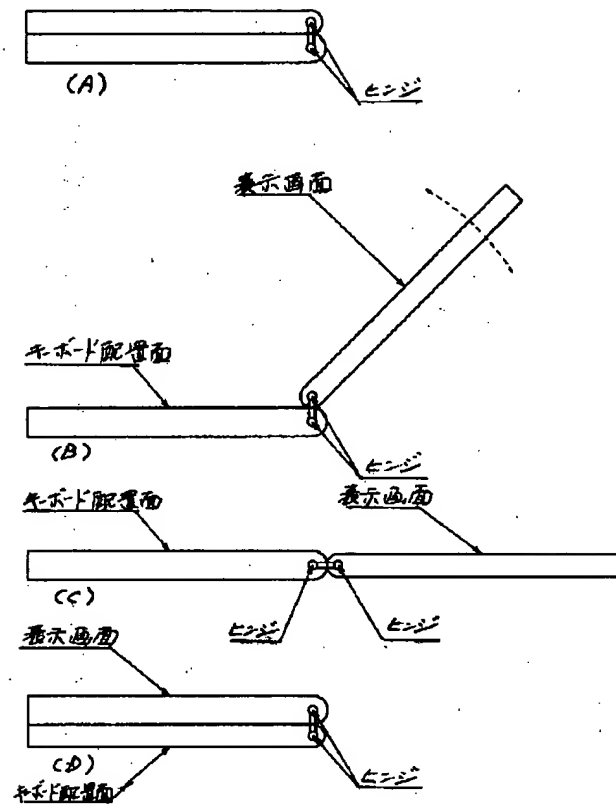
[Drawing 13]



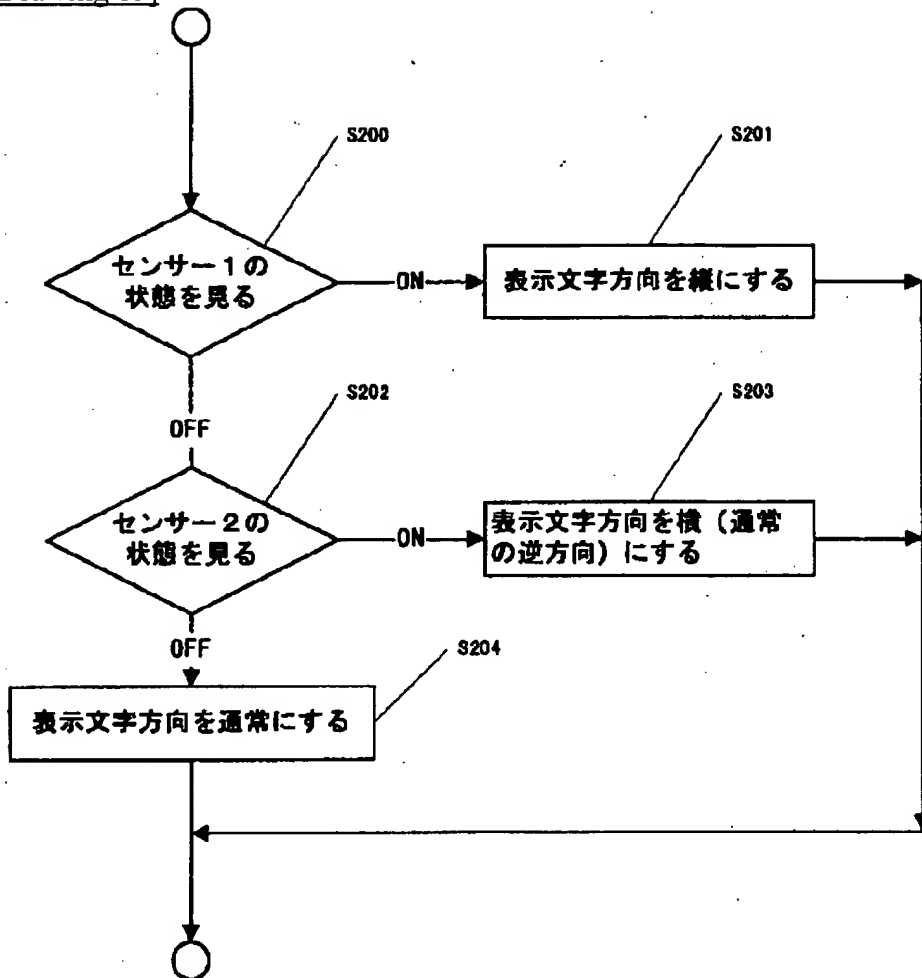
[Drawing 14]



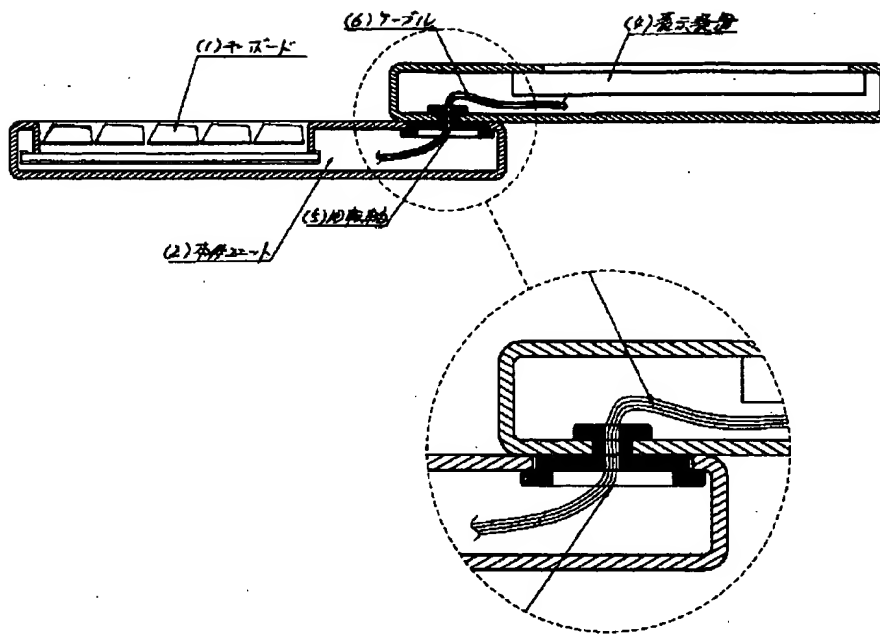
[Drawing 30]



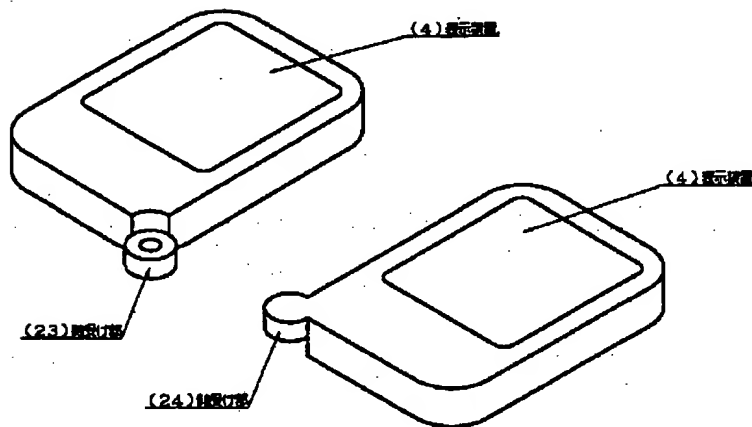
[Drawing 15]



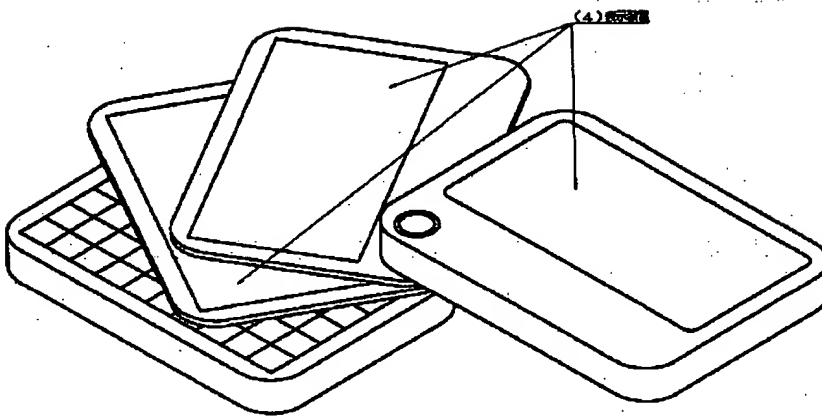
[Drawing 19]



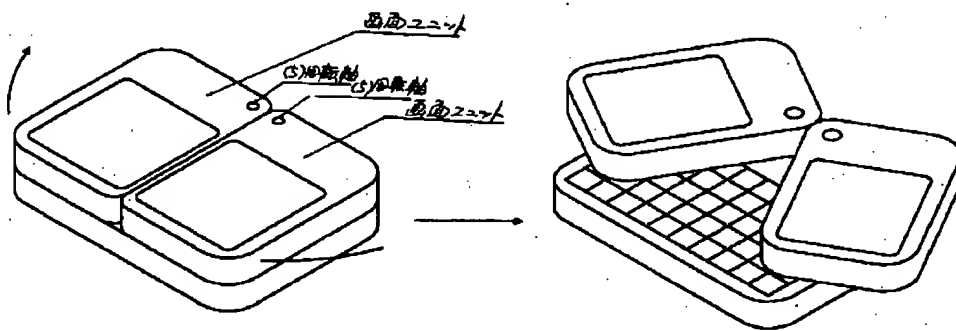
[Drawing 25]



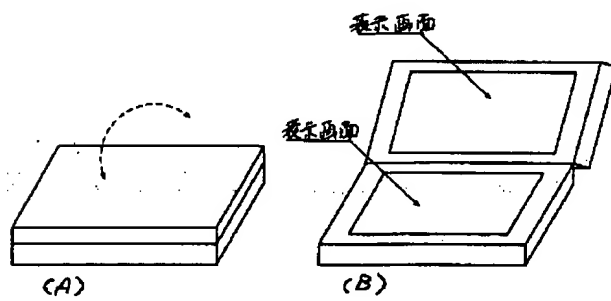
[Drawing 27]



[Drawing 29]



[Drawing 31]



[Drawing 32]

